
**Road vehicles — Tachograph systems —
Part 1:
Electrical connectors**

*Véhicules routiers — Systèmes tachygraphes —
Partie 1: Connecteurs électriques*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 16844 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 16844-1 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

ISO 16844 consists of the following parts, under the general title *Road vehicles — Tachograph systems*:

— *Part 1: Electrical connectors*

Publication of the following parts is also planned:

— *Part 2: Electrical interface*

— *Part 3: Motion sensor interface*

— *Part 4: CAN interface*

— *Part 5: Secured CAN interface*

— *Part 6: Diagnostics*

— *Part 7: Parameter definitions*

Introduction

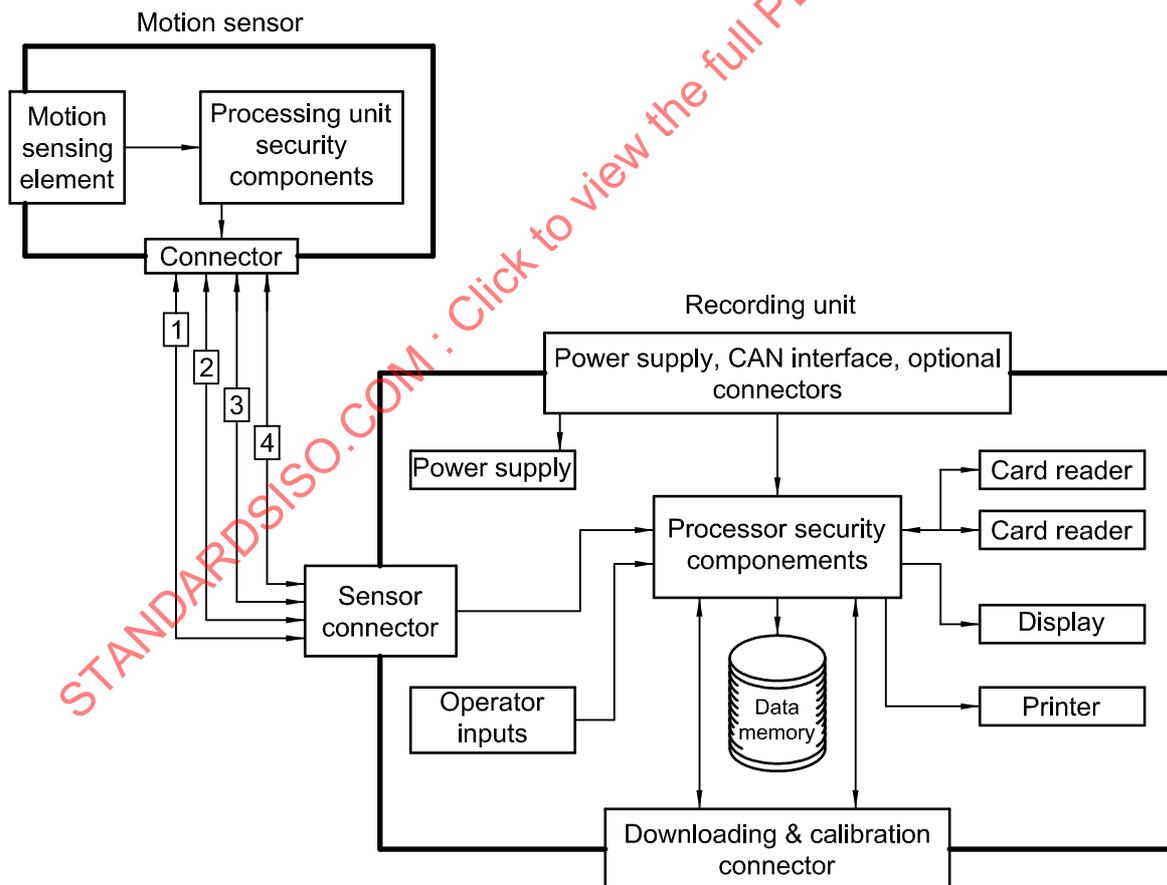
ISO 16844 supports and facilitates the communication between electronic units and a tachograph; the tachograph being based upon Council Regulations (EEC) No. 3820/85^[1] and (EEC) No. 3821/85^[2] and their amendment Council Regulation (EEC) No. 2135/98^[3].

The purpose of this part of ISO 16844 is to ensure the compatibility of tachographs from various tachograph manufacturers.

The basis of the digital tachograph concept is a recording unit (RU) that stores data related to the activities of the drivers of a vehicle on which it is installed. When the RU is in normal operational status, the data stored in its memory are made accessible to various entities such as drivers, authorities, workshops and transport companies in a variety of ways: they may be displayed on a screen, printed by a printing device or downloaded to an external device. Access to stored data is controlled by a smart card inserted in the tachograph.

In order to prevent manipulation of the tachograph system, the speed signal sender (motion sensor) is provided with an encrypted data link.

A typical tachograph system is shown in Figure 1.



Key

- | | |
|-------------------|---------------------------|
| 1 Positive supply | 3 Speed signal, real time |
| 2 Battery minus | 4 Data signal in/out |

Figure 1 — Typical tachograph system

Road vehicles — Tachograph systems

Part 1: Electrical connectors

1 Scope

This part of ISO 16844 gives the dimensions and tests and requirements for the performance of electrical connectors needed for ensuring the interchangeability of different components of the tachograph systems used for road vehicles in accordance with Council Regulation (EEC) No. 3821/85 on recording equipment in road transport. In particular, this part of ISO 16844 specifies the connector used to connect the recording unit of the tachograph to the vehicle electrical wiring harness.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 16844. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 16844 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 8092-2:2000, *Road vehicles — Connections for on-board electrical wiring harnesses — Part 2: Definitions, test methods and general performance requirements.*¹⁾

ISO 8092-3, *Road vehicles — Connections for on-board electrical wiring harnesses — Part 3: Tabs for multi-pole connections — Dimensions and specific requirements.*

3 Dimensions

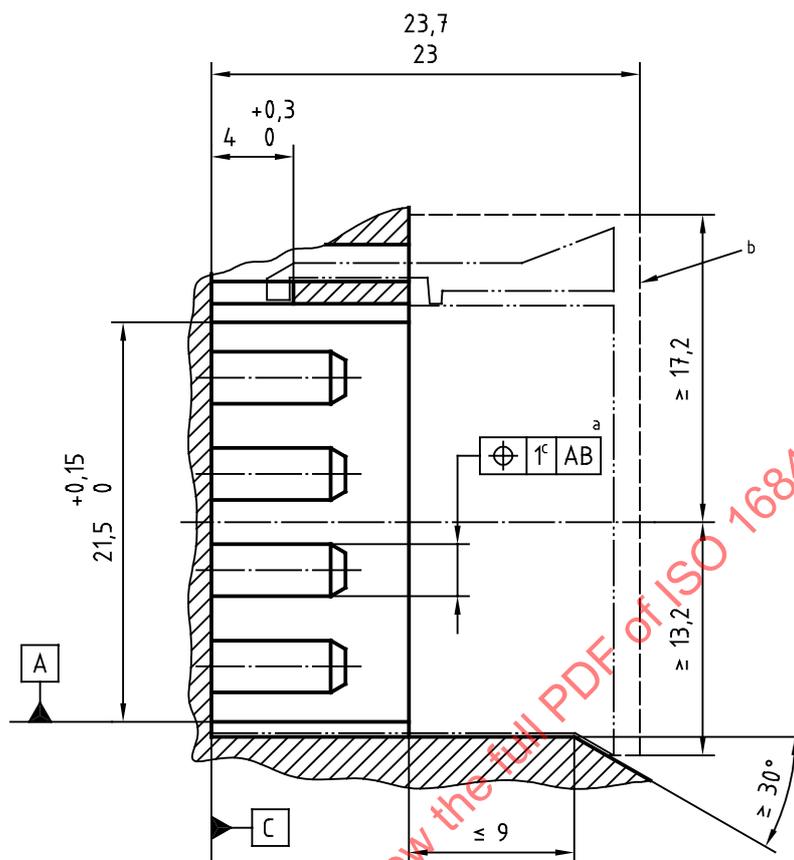
The connectors used to connect the recording unit shall conform with Figure 2.

Details not specified are left to the manufacturer's choice.

The standard connector, (parts A and B) shall be used whilst C and D are optional. The connector parts may be parted from each other at the manufacturer's discretion.

1) Corrected and reprinted 2001.

Dimensions in millimetres



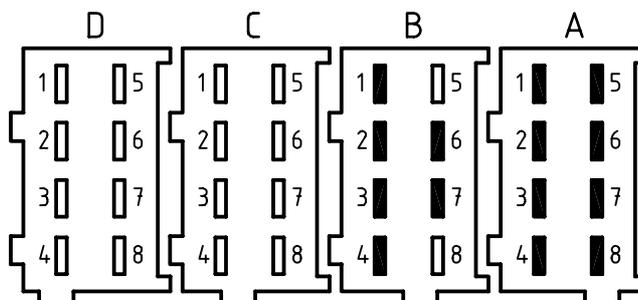
- a All tabs.
- b Requested space for socket housing (space for disconnection and cable not shown).
- c Linear increase from 0,12 at the level of reference plane "C" up to 0,4 at the top of the tabs.

Figure 3 — Section A-A (see Figure 2)

4 Contact allocation

4.1 Standard connector

The contact allocation of the standard connector, modules A and B, shall be as shown in Figure 4 and as given in Table 1.



NOTE Connector parts D and C, and contact B.8 are optional.

Figure 4 — Standard connector, connector part A and B allocation

Table 1 — Contact allocation of standard connector

Connector contact no.	Description
Power supply and CAN bus connection	
A1	Permanent power +
A2	Illumination
A3	Ignition
A4	CAN_H
A5	Battery minus
A6	Ground, GND
A7	CAN_GND
A8	CAN_L
Tachograph speed transmitter connection	
B1	Positive supply
B2	Battery minus
B3	Speed signal, real time
B4	Data signal
B5	—
B6	Speed pulse output
B7	Speed pulse output
B8 ^a	Distance signal, 4 pulses/m
^a Belongs to optional applications.	

4.2 Optional connector

The contact allocation of the optional connector, parts C and D, and contact B.8 shall be as shown in Figure 5 and as given in Table 2.

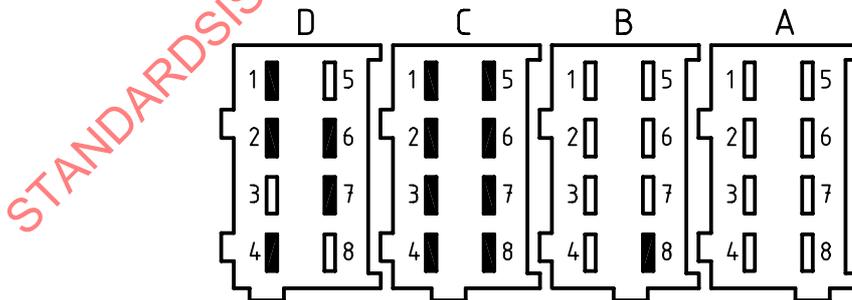


Figure 5 — Optional connector, connector part C and D allocation

Table 2 — Contact allocation of optional connector

Connector contact No.	Description
Engine revolution sensor connection — optional ^a	
C1	Positive supply
C2	Ground
C3	Revolution signal, input
C4	Revolution signal, input
C5	CAN_H
C6	CAN_GND
C7	CAN_L
C8	Internal resistance to CAN_H
Optional functions ^a	
D1	Status input 1
D2	Status input 2
D3	—
D4	General tachograph warning output
D5	—
D6	Speed pulse output for instrument
D7	Data communication I/O
D8	—
^a Recommended for connector pinning, when used.	

5 Performance — Tests and requirements

5.1 General

The connection shall be tested according to, and fulfil the requirements of, ISO 8092-2, with the following provisions and exceptions:

5.2 Temperature/humidity cycling

The applicable test temperature taken from 4.10 of ISO 8092-2:2000 shall be according to

- Table 3, Environmental and test temperatures, and
- Class 1 (test temperature 85 °C).

5.3 Combined temperature/vibration

The applicable test parameters taken from 4.11 of ISO 8092-2:2000 shall be according to

- Table 5, Combined temperature/vibration test, parameters, and
- Class A.